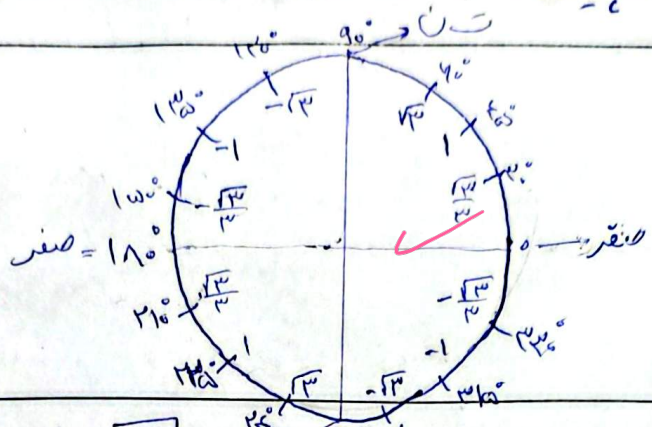




الف) $\frac{1}{2} + (-1) \cdot (-2) \rightarrow \boxed{\frac{3}{2}}$

ب) $\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} + \frac{3\sqrt{3}}{2} = \boxed{\frac{5\sqrt{3}}{2}}$

ج) $-\frac{\sqrt{3}}{2} + \sqrt{3} + \frac{2}{\sqrt{3}} \rightarrow -\frac{\sqrt{3}}{2} + \frac{2\sqrt{3}}{2} + \frac{2\sqrt{3}}{2} = \boxed{\frac{3\sqrt{3}}{2}}$

د) $\cos(\sin \pi) + \sin(\pi \cos \pi) \rightarrow \cos(0) + \sin(-\pi) = 1 - 1 = 0$

$a^2 + 5a = 2a + a + 2 \rightarrow a^2 + a - 2 = 0$

$f(1) \rightarrow 1 + 1 = \boxed{2}$

$(a+2)(a-1) = 0 \rightarrow a = -2 \text{ or } a = 1$

$f(n) = \begin{cases} 3n^2 - b & |n+1| \geq 2 \\ a + cn & -3 \leq n \leq -1 \end{cases}$

$n+1 \geq 2 \rightarrow n \geq 1$
 $n+1 \leq -2 \rightarrow n \leq -3$

$f(-3) \rightarrow 1 - b = a - 4 \rightarrow a + b = \boxed{5}$

الف) $\sum_{k=0}^n (k^2 - 5) = 0 \rightarrow D_f = R - \{0, 5, 4\}$

ب) $kn^3 + 5n^2 + kn + 4 \rightarrow n^3(k+5) + (k+5)n + 4 = 0$

$D_f = R - \{-2\}$

$n = -2$

$$\text{الف) } x^2 - 1 \geq 0 \rightarrow x^2 \geq 1 \rightarrow x \geq 1, x \leq -1$$

$$x - 2 \geq 0 \rightarrow x \geq 2$$

$$\rightarrow [1, +\infty)$$

د

$$\text{ب) } 9 - 3x \geq 0 \rightarrow 9 \geq 3x \rightarrow 3 \geq x$$

$$4x - 3 > 0 \rightarrow 4x > 3 \rightarrow x > \frac{3}{4}$$

$$\rightarrow \left(\frac{3}{4}, 3\right]$$

$$\text{if } x = 2 \Rightarrow$$

$$4x^2 - a = 0 \quad a = 16$$

$$b - 4 = 0 \rightarrow b = 4$$

$$\frac{b}{a} = \frac{4}{16} = \frac{1}{4}$$

د

$$\text{الف) } y = \sqrt{\frac{(x-3)(x+2)}{x^2 - 13x + 34}}$$

$$x \geq 3 \rightarrow x \geq 3$$

$$x^2 - 13x + 34 \rightarrow (x-4)(x-9) = 0$$

$$D_f = (-\infty, -3) \cup (4, 9) \cup (9, +\infty)$$

$$\text{ب) } \sqrt{\frac{(n-1)(n^2-n-4)}{(n+1)(n^2+n-4)}} \rightarrow \sqrt{\frac{(n-1)(n-3)(n+2)}{(n+1)(n+3)(n-2)}}$$

$$D_f = (-\infty, -3) \cup [-2, -1) \cup [1, 2) \cup [3, +\infty)$$

$$\text{الف) } 2[n] - 4 \geq 0 \rightarrow [n] \geq 2 \rightarrow n \geq 2$$

$$\text{ب) } 2[n] - 5 \geq 0 \rightarrow [n] \geq \frac{5}{2} \rightarrow n \geq 3$$

د

$$\text{الف) } \sqrt{\frac{x+1}{x-3}} + \sqrt{\frac{4-x}{(x+2)^2}} \rightarrow \frac{-1}{x-3} + \frac{2}{x+2}$$

$$[-1, 2) \cup [3, +\infty)$$

$$\text{ب) } [n] - 4 \geq 0 \rightarrow [n] \geq 4 \rightarrow n \geq 4$$

$$2 - [n] \geq 0 \rightarrow [n] \leq 2 \rightarrow n \leq 3$$